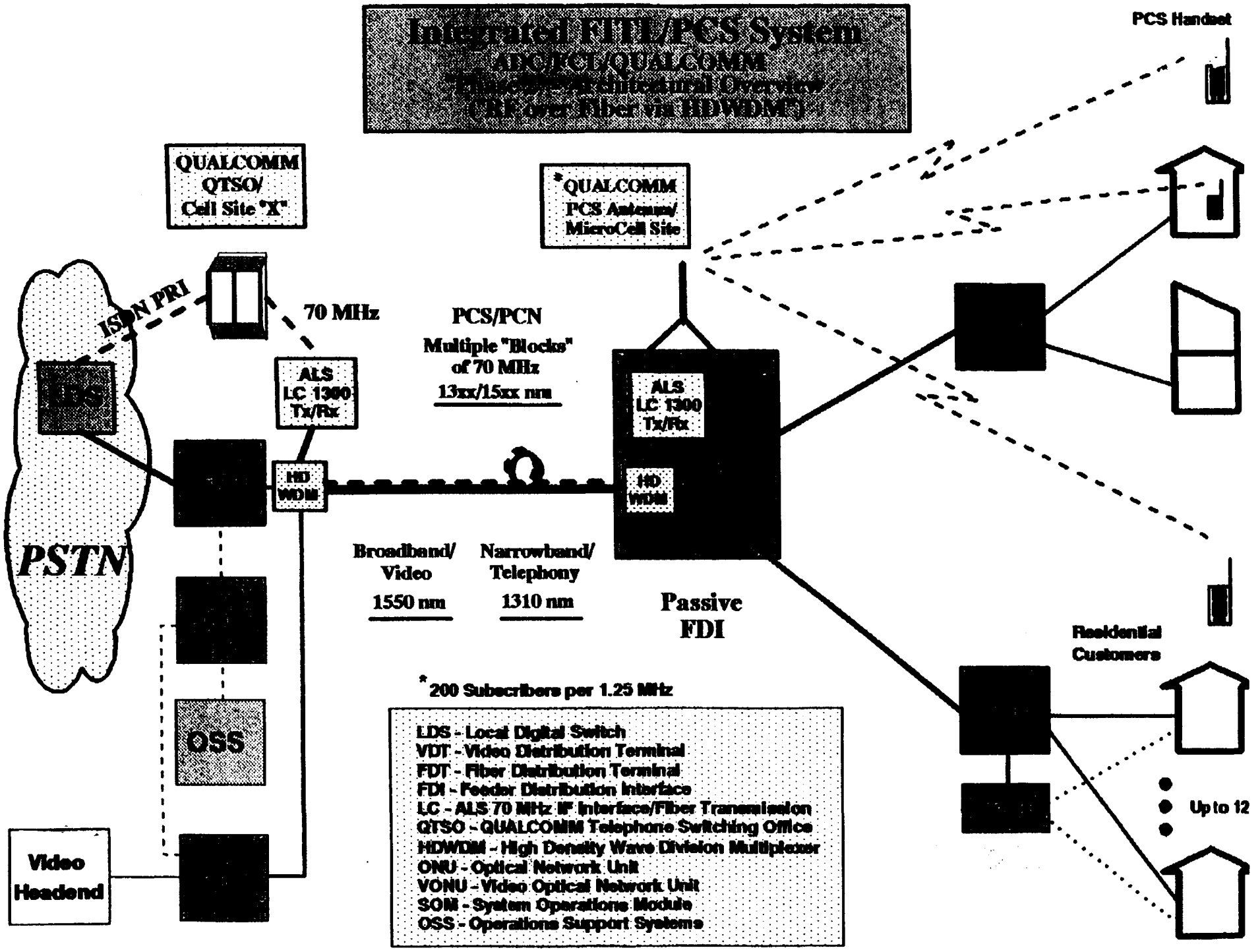
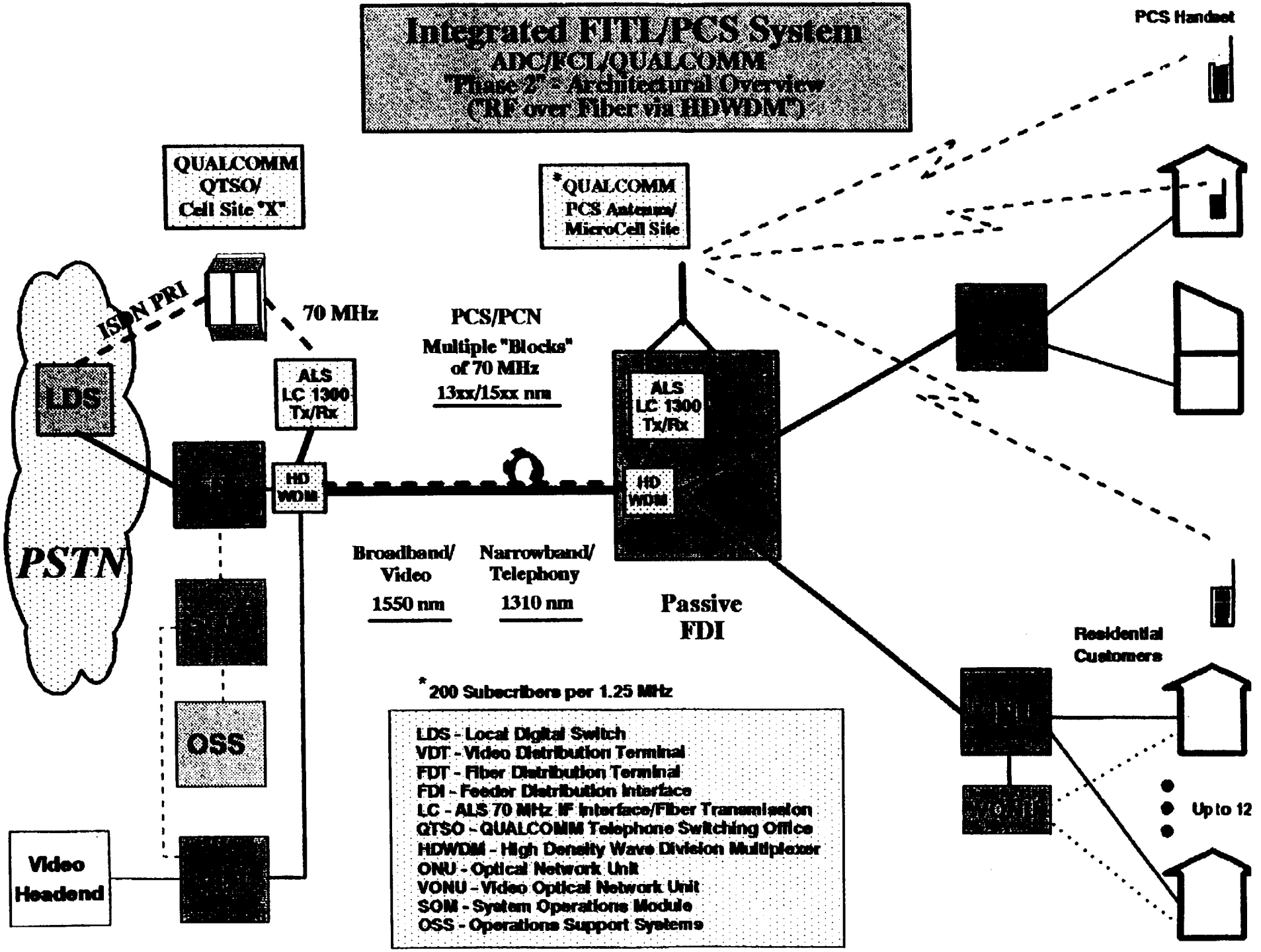

Integrated FITL/PCS System
ADC/ICT/QUALCOMM
Architectural Overview
(RF over Fiber via HDWDM)
PCS Handset
QUALCOMM
QTSO/
Cell Site "X"
*QUALCOMM
PCS Antenna/
MicroCell Site
ISDN PRI
70 MHz
PCS/PCN
Multiple "Blocks"
of 70 MHz
1300/1500 nm
LDS
ALS
LC 1300
Tx/Rx
HD
WDM
ALS
LC 1300
Tx/Rx
HD
WDM
PSTN
Broadband/
Video
1550 nm
Narrowband/
Telephony
1310 nm
Passive
FDI
Residential
Customers
Up to 12
OSS
Video
Headend
*200 Subscribers per 1.25 MHz
LDS - Local Digital Switch
VDT - Video Distribution Terminal
FDT - Fiber Distribution Terminal
FDI - Feeder Distribution Interface
LC - ALS 70 MHz IF Interface/Fiber Transmission
QTSO - QUALCOMM Telephone Switching Office
HDWDM - High Density Wave Division Multiplexer
ONU - Optical Network Unit
VONU - Video Optical Network Unit
SOM - System Operations Module
OSS - Operations Support Systems

Integrated FTTL/PCS System
ADC/FCL/QUALCOMM
"Phase 2" - Architectural Overview
(RF over Fiber via HDWDM)



TAB

EXHIBIT 3

In order to ensure widespread deployment of PCS throughout the U.S., and to make available as many transmission platforms as possible, CTP has also carried on extensive work, in conjunction with Digidech, Inc., on the coaxial cable transmission carrier for wireless local loop. One critical technical problem in adding PCS capability to coaxial cable plant is the need for technology that will permit addition of telephone transmission capability without degradation of present cable television channels. Digidech has a technology that allows each cable television channel to carry 768 kbs of data transmissions, with these signals transmitted *underneath* the video signal.[1/] The technology also can be used on full channels above or below those currently used by the CATV operator.

A typical 50-channel CATV system, after implementing error correction of the 768 kbs channel, could carry up to 1000 simultaneous calls, even without using channels above or below those currently used. With digital compression, this capacity could be doubled. CTP is working with Digidech to adapt this technology to PCS. Attached is a diagram of the approach.

[1/]The technological approach being implemented by CTP has its roots in technology developed by Sarnoff Laboratories for High Definition Television. Digidech is currently a supplier to Le Group Videotron, the second largest CATV operator in Canada, in connection with interactive TV.

DIGIDECK, INCORPORATED

THE MICROCHANNEL SYSTEM FOR PCS DELIVERY ON COAXIAL CABLE

Summary

A new method of transmitting digital signals over coaxial cable TV plant has been developed which does not interfere with or take any existing video spectrum. Each data signal transmits up to 768 kbps underneath an existing video signal. (A 50 channel television cable supports 50 such data signals.) A portion of the 768 kbps must be devoted to error correction depending on the application and cable conditioning. In an initial test a 512 kbps data segment was used to carry CD-quality audio or 16 digitally compressed voicegrade signals.

Microchannels Description

The proposed concept (Fig. 1) is to transmit the downstream PCS segment using a new cable technology Digideck calls Microchannels; backhaul signals would use a portion of the existing 5-30 MHz coax return band. Each microchannel potentially carries up to 768 kbps in a "data under" mode inside an existing video channel, one for every television channel on the cable. (Certain other portions of the cable spectrum may also be used -- particularly those that mandate low-level or non-interfering signalling, such as the aeronautical band.)

The datastream may be implemented using standard 64 kbps codecs, or a new low-power form of 32 kbps DPCM developed by Digideck. In a recent test, Digideck demonstrated the successful delivery of audio within a channel suffering external ingress sufficient to cause the in-channel video signal to entirely lose vertical synchronization (i.e., picture tearing and rolling).

Digideck, Incorporated

Digideck was formed in 1982 as a spinoff company from SRI International, to focus on audio data compression opportunities. As part of this effort, the company has been instrumental in sponsoring and applying compatible transmission methods for coaxial cable systems. Microchannels is currently under development at Digideck for use in an interactive cable television system. Consumer cost-level hardware for that purpose, including the modulators, demodulators and DPCM chips, is about a year away. Future techniques which could double the data rate per channel should become cost effective in another four years.

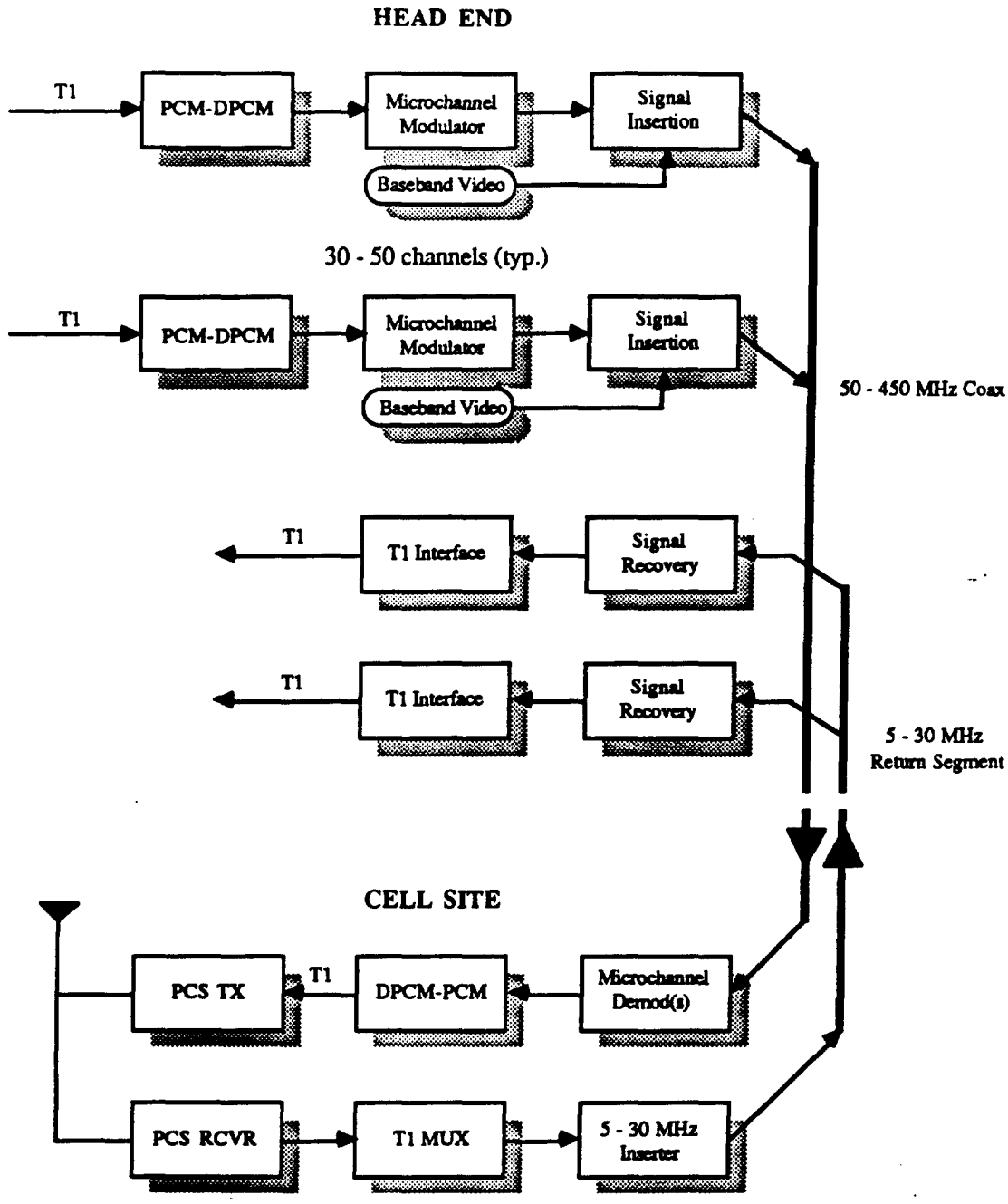


Fig. 1 -- Microchannel PCS Functional Diagram